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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

D AGOSTA, STEPHEN M

ART UNIT

PAPER NUMBER

2683

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/743,631

Applicant(s)

KUSAKI ET AL.

Examiner

Stephen M. D'Agosta

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 5 objected to because of the following informalities: There is a typographical error, the word "edge" in the preliminary amendment should be "judges" as per the original claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Kounoe JP-8289118 and further in view of Sood US 5,721,762 and Ostroff et al. US 6,201,968.

As per **claims 1, 3, 5, 8, 14 and 17**, Kounoe teaches a method of switching lines in a system comprising a data mobile station (MS), a plurality of BTS's accommodating said data mobile via radio links, a BSC and a data network connected to said BSC, wherein when said data MS, in the course of transmitting discontinuous data through a before-movement BTS (eg. pre-handoff BTS), in an area formed by said before-movement BTS, moves to an area formed by an after-movement BTS (eg. post-handoff BTS) different from before-movement BTS (abstract teaches a radio data communication channel changeover which reads on a mobile system comprising BTS's, Mobiles and BSC's/MS's)),

Wherein said BSC controller:

Switches, at said timing, from a line set through said before-movement BTS to a line through after-movement BTS which is required after movement (abstract teaches channel changeover which reads on a handoff)

but is silent on detects a timing at which data transmission/reception are not performed with said before-movement BTS.

The examiner notes that Kounoe teaches a "data communication interrupt" being used to artificially stop transmission while switching occurs.

Sood teaches cellular data calls being a series of discontinuous, intermittent data packet exchanges, the data cellular network will not be suitable for carrying high quality

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voice or analog communications, although it might carry very low quality voice calls. It is, however, ideal for a computer data link. Data calls between computers often have long intervals of inactivity which render a continuous connection unnecessary, expensive and wasteful. Instead, a data call carried as a series of data packets, exchanged at intervals of several seconds or more, will "look" to the users like a continuous call, establishing a "virtual" connection between the users (C16, L56-67). Hence, one skilled would perform various functions during the "long intervals of inactivity" (see Ostroff below).

Ostroff discloses TDM channel access procedures, a communication resource, such as a wireless carrier frequency, is divided into time frames, and the frames are subdivided into time slots. Several communication units may share a frame, each with its designated slot for transmit or receive operations. With this arrangement, a subscriber unit may be engaged in communications with another subscriber unit or other communicant during its transmit and receive slots, but generally has time between receive and transmit operations (dead time), and during periods of communication inactivity for monitoring **and other purposes**. According to the present invention, the subscriber unit uses available time to monitor for potential server cell sites, and to perform update of its neighbor cell list as needed. (C4, L14-39). The examiner interprets "other purposes" as including switching between BTS's during a handoff.

Hence, one skilled in the art would use periods of inactivity (either when data is being transmitted or not) to switch BTS's during a handover.

With further regard to claim 3, Kounoe is silent on obtaining timing at which data is not received from data network and BTS. Ostroff teaches "performing monitoring or other functions during periods of inactivity" (C4, L14-39) which inherently requires means to detect if data is/is not being transmitted and reads on the claim.

With further regard to claim 5, Kounoe is silent on judging if data is contained in said downlink/uplink frames to detect a timing at which data is not received. Ostroff teaches "performing monitoring or other functions during periods of inactivity" (C4, L14-39) which inherently requires means to detect if data is/is not being transmitted and reads on the claim.

With further regard to claim 8, Kounoe teaches an interrupt that is sent to stop communications until a handoff occurs. Any/all data to be sent inherently must be stored until the link is reestablished which reads on the claim (eg. NW-side buffer).

With further regard to claim 14, Kounoe teaches radio data communications which reads on "a network-side interface part for receiving communication frames" (eg. a transceiver) and since an interrupt is performed, a buffer is inherently required to store data while in interrupt mode.

With further regard to claim 17, Kounoe is silent on means for identifying a frame number of each frame accumulated in NW-side or BTS-side buffers, means for storing with a frame buffer number, means for extracting timing based on association in said means for storing and means for extracting each frame number corresponding to said extracted timing. The examiner notes that Kounoe interrupts data transmission and requires means (eg. numbering of each frame) to keep track of any/all frames

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transmitted or waiting to be transmitted. Further to this point is TCP/IP which provides numbering of each packet/frame sent and reads on this claim language.

With further regard to claim 19, Kounoe teaches storing frames (based on the interrupt control – abstract) and means for extracting any/all frames from the stored frames and means to transmit (abstract). The examiner also notes that Kounoe's teachings of radio "data" communication reads on packet data which typically uses the TCP/IP and provides numbering of packets/frames so that any missed packet can be specifically retransmitted.

It would have been obvious to one skilled in the art at the time of the invention to modify Kounoe, such that the system can detect when the system is not transmitting, to provide means for switching without having to interrupt the data transmission.

As per **claim 2**, Kounoe teaches claim 1 wherein said timing at which data transmission and reception are not performed, which is detected by said BSC, is communicated to said data MS (Abstract teaches communication between radio system and the mobile, eg. an interrupt message is sent).

As per **claims 4 and 6**, Kounoe teaches claim 3/5 wherein said timing at which data is not received both from said data network and from BTS, which is detected by said BSC, is communicated to said data MS (Abstract teaches communication between radio system and the mobile, eg. an interrupt message is sent).

As per **claim 7**, Kounoe teaches claim 5 **but is silent on** wherein said data MS:
Stores, temporarily, a plurality of frames to be sent to said BTS

Detects a frame corresponding to said communicated timing among said plurality of frames stored temporarily in the data MS and

Performs retransmissions from said detected frame

The examiner notes that Kounoe interrupts data transmission and requires means (eg. numbering of each frame) to keep track of any/all frames transmitted or waiting to be transmitted. Further to this point is TCP/IP which provides numbering of each packet/frame sent and reads on this claim language].

It would have been obvious to one skilled in the art at the time of the invention to modify Kounoe, such that frames are stored/numbered and can be retransmitted, to provide means of tracking frames/packets so that any lost/corrupted data can be resent.

As per **claim 9**, Kounoe teaches claim 8 **but is silent on** wherein

With respect to each of the communication frames accumulated in each of said NW-side buffer and said BTS buffer, a specific number of the frame and existence or non-existence of information contained in said frame are stored into an information control table, being associated with a frame buffer number of the frame [abstract - The examiner notes that Kounoe interrupts data transmission and requires means (eg. numbering of each frame) to keep track of any/all frames transmitted or waiting to be transmitted. Further to this point is TCP/IP which provides numbering of each packet/frame sent and reads on this claim language]

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but is silent on Said table is used to detect a timing at which data is not contained in both said uplink frames and said downlink frames for a certain time period.

Sood teaches data calls between computers often have long intervals of inactivity which render a continuous connection unnecessary, expensive and wasteful. Instead, a data call carried as a series of data packets, exchanged at intervals of several seconds or more, will "look" to the users like a continuous call, establishing a "virtual" connection between the users (C16, L56-67). Hence, one skilled would perform various functions during the "long intervals of inactivity" (see Ostroff below) AND Ostroff discloses TDM communications with time between receive and transmit operations (dead time), and during periods of communication inactivity for monitoring **and other purposes**.

According to the present invention, the subscriber unit uses available time to monitor for potential server cell sites, and to perform update of its neighbor cell list as needed. (C4, L14-39). The examiner interprets "other purposes" as switching between BTS's during a handoff.

It would have been obvious to one skilled in the art at the time of the invention to modify Kounoe, such that a table is used to keep track of when data is in frames for a certain period, to provide means for understanding the communications pattern and when a switch may be inevitable.

As per **claim 10**, Kounoe teaches 9 **but is silent on** wherein

Said timing at which data is not received, which is detected by said BSC is communicated to said data MS.

Sood teaches data calls between computers often have long intervals of inactivity which render a continuous connection unnecessary, expensive and wasteful. Instead, a data call carried as a series of data packets, exchanged at intervals of several seconds or more, will "look" to the users like a continuous call, establishing a "virtual" connection between the users (C16, L56-67). Hence, one skilled would perform various functions during the "long intervals of inactivity" (see Ostroff below) AND Ostroff discloses TDM communications with time between receive and transmit operations (dead time), and during periods of communication inactivity for monitoring **and other purposes**.

According to the present invention, the subscriber unit uses available time to monitor for potential server cell sites, and to perform update of its neighbor cell list as needed. (C4, L14-39). The examiner interprets "other purposes" as switching between BTS's during a handoff.

It would have been obvious to one skilled in the art at the time of the invention to modify Kounoe, such that timing data detected by said BSC can be communicated to the data MS, to provide means for feedback to the mobile regarding frames stored/transmitted.

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As per **claim 11**, Kounoe teaches claim 10 wherein said data MS;

Stores temporarily a plurality of frames to be sent to said BTS (abstract teaches interrupt mode which stops transmission and requires buffering of data)

But is silent on Detects a frame number corresponding to said communicated timing among said plurality of frames stored temporarily in the data MS, said detection being carried out based on contents of said table and

Performs retransmission from said detected frame.

The examiner notes that Kounoe interrupts data transmission and requires means (eg. numbering of each frame) to keep track of any/all frames transmitted or waiting to be transmitted. Further to this point is TCP/IP which provides numbering of each packet/frame sent and reads on this claim language.

It would have been obvious to one skilled in the art at the time of the invention to modify Kounoe, such that frames are numbered and can be retransmitted, to provide means of tracking frames/packets so that any lost/corrupted data can be resent.

As per **claim 12**, Kounoe teaches claim 10 **but is silent on** wherein:

Said timing communication to said data MS is carried out by communicating the frame number corresponding to the timing at which data is not received both from said data communication network and from said BTS which is detected by said BSC.

The examiner notes that Kounoe interrupts data transmission and requires means (eg. numbering of each frame) to keep track of any/all frames transmitted or waiting to be transmitted. Further to this point is TCP/IP which provides numbering of each packet/frame sent and reads on this claim language.

It would have been obvious to one skilled in the art at the time of the invention to modify Kounoe, such that frames can be numbered for retransmission, to provide means of tracking frames/packets so that any lost/corrupted data can be resent.

As per **claim 13**, Kounoe teaches claim 12 **but is silent on** wherein

Said data MS stores, temporarily, a plurality of frames to be sent to said BTS system and respective frame numbers of said plurality of frames

Said frame number corresponding to the timing at which data is not received both from said data communication network and from said BTS which is detected by said BSC is communicated to said data MS

Said data MS detects a frame corresponding to said frame number, which is sent at said timing, among said plurality of frames temporarily stored in said data MS and performs retransmission from said detected frame.

The examiner notes that Kounoe interrupts data transmission and requires means (eg. numbering of each frame) to keep track of any/all frames transmitted or waiting to be transmitted. Further to this point is TCP/IP which provides numbering of each packet/frame sent and reads on this claim language.

It would have been obvious to one skilled in the art at the time of the invention to modify Kounoe, such that frames can be numbered for retransmission, to provide means of tracking frames/packets so that any lost/corrupted data can be resent.

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As per **claim 15**, Kounoe teaches claim 14 **but is silent on** further comprising Means for judging existence/nonexistence of data contained in each of the frames accumulated in said NW-side buffer and said BTS buffer.

Ostroff teaches "performing monitoring or other functions during periods of inactivity" (C4, L14-39) which inherently requires means to detect if data is/is not being transmitted and reads on the claim.

It would have been obvious to one skilled in the art at the time of the invention to modify Kounoe, such that it can judge existence/nonexistence of data accumulated, to provide means of tracking data sent/stored for efficient communication/retransmissions.

As per **claim 16**, Kounoe teaches claim 15 **but is silent on** Means for identifying a frame number of each frame accumulated in said NW-side buffer and said BTS buffer and

Means for storing a result of judgement on existence/nonexistence of data and a corresponding frame number, in association with each of the frames accumulated in the NW-side buffer and the BTS buffer.

The examiner takes OFFICIAL NOTICE that data frames/packets are numbered so that they can be reassembled at the receive side (as per TCP/IP transmissions).

Ostroff teaches "performing monitoring or other functions during periods of inactivity" (C4, L14-39) which inherently requires means to detect if data is/is not being transmitted and reads on the claim. Hence, one skilled in the art would be able to correlate between numbered data frames on NW-side and BTS-side buffers.

It would have been obvious to one skilled in the art at the time of the invention to modify Kounoe, such that frames are numbered and data is judged on existence or nonexistence of data, to provide means for keeping tracking of data stored/sent.

As per **claim 18**, Kounoe teaches claim 17, further comprising a means for sending said extracted each frame number to said data MS.

As per **claim 20**, Kounoe teaches claim 20 **but is silent on** wherein means for temporarily storing stores frames and frame numbers of frames.

The examiner notes that Kounoe interrupts data transmission and requires means (eg. numbering of each frame) to keep track of any/all frames transmitted or waiting to be transmitted. Further to this point is TCP/IP which provides numbering of each packet/frame sent and reads on this claim language.

It would have been obvious to one skilled in the art at the time of the invention to modify Kounoe, such that frames can be numbered/stored, to provide means of tracking frames/packets so that any lost/corrupted data can be resent

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Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:


1. Adachi US 5,953,324
2. Padovani et al US 6,574,211
3. Willars et al. US 5,533,014
4. Tiedemann Jr. US 6,021,122

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 703-306-5426. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

SMD 


WILLIAM TROST
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